

Sole Source Justification
PR 4200448069

NASA John F. Kennedy Space Center will negotiate for renewal of maintenance and support for the existing Real-Time Innovations (RTI) software licenses. The estimated cost for this effort is [REDACTED]

Pursuant to FAR 13.106-1(b)(1), the software is deemed available from only one responsible source and no other type of supplies or services will satisfy NASA's requirements.

Real-Time Innovations is a commercial software product that provides an implementation of the Object Management Groups (OMG) Data Distribution Service (DDS) standard. RTI provides the following functionality that is currently being used in the Control and Data Systems development effort: fault tolerance through passive process replication, message traceability, persistence profile, and content subscription profile. This functionality is data driven and compliant with the OMG DDS standard specification. There are no other resellers of the support and maintenance and no other vendor's license support is compatible with the existing product.

Only a particular brand or vendor can meet requirements:

A market survey was performed looking at the salient features of Data Distribution Service implementation (PrismTech OpenSplice and RTI DDS). The quality attributes used are as follows:

- a. Architectural – is the system monolithic or distributed/component based
- b. Hardware and Operating System platforms supported
- c. Market share – existing customer base (i.e., active deployed systems)
- d. Maturity of the product
- e. Formalized testing procedures, issue tracking, and release management
- f. Level of compliance with the OMG standard

All of the vendor products reviewed provide DDS functionality required to support the NE-C Constellation architectural Proof of Concept in the early stages of the Launch Control System project. However, the results of the market survey indicate that the RTI DDS product most closely satisfies all of the defined quality attributes.

RTI is a mature software product that employees have formal testing and version release procedures. RTI has a significant share of the data distribution market related to control systems (i.e., telecom, naval vessel). The product is currently supported on multiple platforms being used in the Constellation proof of concept development effort (i.e., RedHat Linux and Sun Solaris for Sparc, IBM AIX for Power).

The Persistence profiles and complete content based subscription profile are required to achieve the level of decoupling and performance of the system components. Without

these profiles the development effort is significantly increased. The development effort is directly correlated to the amount of time required to deliver the system and the amount labor cost to deliver the system.

NE-C, the organization responsible for the development effort is also evaluating IBM pSeries Enterprise servers running the AIX operating system. The RTI product provides a data centric model for managing complexity in the system infrastructure. The additional capabilities associated with message topic queries and the fault tolerance aspect significantly reduce the risk of developing similar capability at KSC resulting in a reduction in the man hours required to develop the Launch Control System. The continued use of this product is the best value for the government from the perspective of both cost and time savings.

RTI DDS is one of two DDS COTS products being used to support the Launch Control System (LCS) publish and subscribe architectural feature. RTI is implemented using the OMG DDS standards (described in the previous paragraph) and is a must from both of these products to meet our requirements of being able to change COTS products if needed with minimal impact to the LCS architecture. RTI is one of the two products needed for further evaluation during the development of LCS on their performance and functionality in determining how each will fit the needs for LCS.

Background and continuation of previous effort:

NE-C3 is currently engaged in the development for the Launch Control System. The RTI DDS product was utilized during the proof of concept effort and will continue to be used as the OMG DDS standard compliant message oriented middleware for the Launch Control System data exchange infrastructure as the prototype is migrated. A minimal set of licenses was procured for the proof of concept, additional license are required to support the number of developers.

The requested license renewals and software support are specifically designated to be compliant with the existing licensed software products, operating systems, and hardware platforms, and cannot be substituted with another manufacturer's product. Per FAR 6.302-1(a)(2)(ii), the substantial duplication of cost to NASA associated with changing software products would not be recovered through competition, and would also result in an unacceptably longer procurement time.

Based upon the above, I hereby determine that the circumstances of the contract action deem only one source reasonably available for this acquisition. I certify that this justification is accurate and complete to the best of my knowledge and belief.

8/27/2012

X Jennifer C Boelke

Jennifer C. Boelke
AST, Ground Data Systems

I hereby accept the above stated recommendation and determine that the circumstances of the contract action deem only one source reasonably available.

8/29/2012

X Kelly J. Boos

Kelly J. Boos
Contracting Officer
Signed by: KELLY BOOS